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ABSTRACTS

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(Pages refer to the Japanese originals of this volume unless otherwise noticed)

Forschungen über das Fleischeiweiß des Herings.

(ss. 915~920)

Von Saburô WAKAMATSU.

(Obama Präfekturfischereischule in Fukui; Eingegangen am 14. 9. 1939.)

An dem Material von gefangenen Heringen in der Nähe von Otaru in Hokkaido forschte der Verfasser über den Lösungsgrad des Muskels mittels heterogener Lösungsmittel, die Verteilung aller Arten von Eiweißkörpern, die Aminosäuren des Fleischeiweißes, die Bestandteile des Fleischextraktes und die Purinbasen im Fleischeiweiß.

Studies on the Yeasts Found in "Miso".

(Supp. Contributions)

Part I. Morphological Properties.

(pp. 921~932)

By Masatoshi MOGI.

(The Brewing Laboratory of Noda Co. Ltd., Noda-machi, Chiba-ken, Japan;

Received Sept. 5, 1939.)

Phosphoric Acid Absorption of Soils in Tyosen. II.

(pp. 933~938)

By MISU-Hideo.

(Agricultural Experiment Station, Government General of Tyosen;

Received Aug. 28, 1939.)

Studies on Histaminase. I.

Chemical Method for Determining the Activity of Histaminase.

(pp. 939~946)

By Kiyooki TAKAHASHI and Toshio UMEDA.

(Laboratory of Osaka Factory of Sankyo Co., Ltd.; Received Sept. 13, 1939.)

The activity of histaminase had been determined by animal experiments. A new chemical method is described which includes the preparation of an extract from hog kidney powder, adsorption of the enzyme on Japanese acid clay, inactivation of histamine solution by the adsorbate in 24 hours at 38°C and determination of the residual histamine.

Pauly's diazo reaction is used for the colorimetric determination and the value obtained is corrected by the amounts of histamine adsorbed on the acid clay.

Inactivation curve of histamine by the various amounts of histaminase is described.

On the Steppe Soil between Harbin and Tsitsikhar in Manchuria.

(pp. 947~952)

By R. KAWASHIMA.

(Agr. Chem. Laboratory, Kyushu Imp. University; Received Sept. 27, 1939.)

A study has been made of the physical properties and chemical composition of three soil profiles in the semihumid region between Harbin and Tsitsikhar. The results of analysis represent a fairly good similarity relating to both physical and chemical properties. An average percentage content of calcium in the exchangeable cations is 95.2. Therefore all of the soils belong to the absolute pedocal.

It is shown that the composition of the colloidal clay below 0.001 mm in diameter has an average composition expressed by the mean silica-sesquioxide ratio 2.74, silica-alumina ratio 3.6, and the composition of the colloidal clay in these soils is strikingly similar.

On the Hydrolysis of Fats and Fatty Acid Esters (2)

(pp. 953~965)

By Toyoki ONO.

(Chemical Laboratory of the Fish Meal Association of Japan;

Received Sept. 25, 1939.)

Saponification was carried out in 0.2 mol. alcoholic KOH solution which contains the same volume of benzene, and 0.2 g of fat in 100 cc.

I. Influence of amount of fat:

In case of containing less fat than KOH, the reaction velocity is constant independent of the fat-content, but it diminishes in case of a large quantity of fat.

II. Influence of concentration of alkali:

Table II shows the rate of saponification velocity in various concentrations of alkali.

Table II. Effect of Alkali Concentration.

	Sardine Oil					Cacao Butter
	40°C	30°C	13°C	5°C	80% alcohol	30°C
$k' : k''$	1.504	1.867	1.192	1.099	1.253	1.790
$k' : k''$	1.971	1.573	1.460	1.274	0.862	1.369
$k' : k'''$	2.965	2.937	1.739	1.399	1.080	2.449

k , k'' and k''' indicate the reaction velocity coefficient in 0.2, 0.1 and 0.05 mol. KOH solution.

From the above results, the velocity in 0.2 mol. diminishes at low temperature: on the contrary in 0.05 mol. it increases.

III. Influence of solvent:

In case of alcoholic KOH solution not containing benzene, " k " of castor oil and perilla oil is greater than that of sardine oil, cacao butter or olive oil.

IV. Saponification velocity of esters:

Results are given in Table III, in which " k " represents the average value of the reaction velocity coefficient.

Table III. The Rate of Saponification of Triglycerides and Esters ($k \times 10^5$)

	30°C	1°C		30°C	1°C
Triglycerides:			Oleic acid iso-Butyl	145.93	11.79
Caprin	236.12	41.66	" Amyl	159.17	13.84
Palmitin	248.14	41.04	Lauric acid n-Propyl	224.00	—
Stearin	216.62	30.25	" iso-Propyl	107.90	—
Olein	223.67	35.56	Stearic acid n-Propyl	190.26	—
Erucin	215.15	27.25	" iso-Propyl	96.13	—
Ricinolein	160.29	28.18	Caprylic acid Ethyl	268.05	18.24
Esters:			Stearic acid Ethyl	208.34	13.68
Oleic acid Methyl	210.67	18.59	Ricinoleic acid Ethyl	213.37	19.75
" Ethyl	206.67	15.65	Phthalic acid Ethyl	477.10	27.25
" n-Propyl	194.21	16.78	Benzoic acid Ethyl	141.73	5.56
" iso-Propyl	121.85	11.96	Salicylic acid Ethyl	6.81	0.55
" n-Butyl	184.19	15.59	" Methyl	17.75	2.66

On the Cellulose Analysis and Bleaching Methods of Cellulose Materials.

(pp. 966~972)

By Sin-iti HONDA.

(The Institute of Chemical Research; Received Oct. 4, 1939.)

Part I. New Method of Cellulose Estimation by Bleaching Powder.

For the methods of plant cellulose estimation, S. H. Jenkins and A. G. Norman had proposed to apply the chlorination in liquid phase in place of gaseous chlorine phase. In their new method *antiformin* (NaOCl) solution was used as the chlorination agent. Because in Nippon we could not gain such a strength of antiformin as they employed, but bleaching powder was obtainable easily, the present writer tried to substitute antiformin and 6% Na_2SO_3 with the extracted liquor of bleaching powder (contains about 10% available chlorine) and 4% Na_2SO_3 .

The present writer used 4% Na_2SO_3 solution instead of 6% Na_2SO_3 solution for the following three reasons:—

(1) Na_2SO_3 solution can be used as the delignification agent even when so dilute as 1.5%.

(2) In the experiments of holo-cellulose, J. G. Ritter etc. extracted with 2% Na_2SO_3 , and dissolved out loosely combined hemicellulose in holocellulose.

(3) While treatments with 3% Na_2SO_3 on direct fire is apt to bump, the treatment with 2% sulphite liquor boils gently and ligninchloride easily dissolves into sulphite solution.

Differences between the present writer's and Jenkins and Norman's procedures consist of the following three points:—

I. Throughout the present author's analysis, the preliminary treatment as well as every after treatment with the 2% sulphite liquor is refluxed 10 minutes.

II. While Jenkins and Norman had used 5 cc of antiformin (contains 15% available chlorine) in so-called neutral chlorination and 5 cc of antiformin (contains 3% available chlorine), the present writer used in every chlorination 5 cc of bleaching powder extract (contains about 10% available chlorine).

III. Although Jenkins and Norman had taken 5 minutes as one chlorination period in a dark place, in the writer's method all the chlorination periods were 10 minutes. The treatment in the dark was not a necessary condition.

To provide an example for his new method, the present author used Bakko-yanagi (*Salix Caprea* L.) and compared its cellulose content by three methods, that is, normal chlorine gas method, Jenkins and Norman's antiformin method and the present writer's bleaching powder method. These results are shown in Table I. In the table, the figures for the ordinary chlorine gas method gave lower contents both in total cellulose and α -cellulose, than those for the chlorination in

Table I. Comparison of analysis by various methods with
bakkoyanagi (*Salix Caprea* L.).
(Oven dry state.)

Components.	Method of Chlorination.	Liquid state (State of solution).		
		Gaseous state.		
	Method of Analysis.	Modified procedure of Cross and Bevan's Method.	NaOCl-Method (Jenkins and Norman's).	Bleaching powder-Method
Total cellulose (%)		54.95	47.67 \pm 0.66	55.69 \pm 0.32
α -cellulose (%) (ashe-free)		37.27	39.88 \pm 0.16	39.26 \pm 0.41
In total cellulose;				
α -cellulose (%)		67.83	83.59 \pm 1.02	70.60 \pm 0.31
α -cellulose-ash (%)		—	0.36	0.09
β -cellulose (%)	}	32.17	16.05	28.45
γ -cellulose (%)				

liquid phase. The low value of total cellulose content by Jenkins' method might be ascribed to the more complete removal of hemicellulose by the alkalinity of

antiformin liquor than attained by the present author's method. However, the α -cellulose content showed good agreement by both methods.

From these results the present writer's bleaching powder method may be recommend for exact cellulose analysis.

Biochemical Studies on the Sexual Organs of the Silk Worm, *Bombyx Mori* L.

Parts I and II. On the changes of some chemical constituents according to the development of the sexual glands (ovary and testis.)

(pp. 973~988)

By Takeo NAKASONE.

(The Mie Sericultural Experiment Station; Received Sept. 20, 1939.)

The author investigated the changes of water, dry matter, nitrogen, glycogen and ash contents in the sexual glands (ovary and testis) according to the development of *Bombyx mori*, after the last instar (after the 4th moulting), and also the influence of both respiration injuries and the extirpation of one of a pair of glands.

The results obtained are summarized in the following tables.

Table I. China 17 Spring reared.

Time (days)	Total content in ten testes				Total content in ten ovaries			
	dry matter	crude ash	total nitrogen	glycogen (glucose)	dry matter	crude ash	total nitrogen	glycogen (glucose)
The 5th instar	mgr	mgr	mgr	mgr	mgr	mgr	mgr	mgr
1	2.40	0.025	0.745	0.109	0.81	0.08	0.808	?
2	2.75	0.09	0.851	—	1.06	0.08	0.942	?
3	3.10	0.11	0.908	0.118	1.18	0.09	0.970	0.74
4	4.10	0.115	0.982	—	1.35	0.105	0.998	+
5	4.50	0.12	1.209	0.152	1.49	0.156	1.133	?
6	6.25	0.14	1.305	0.428	1.60	0.158	1.113	0.36
7	6.35	0.25	1.447	0.188	2.25	0.160	1.137	1.90
9 cocooning	7.25	0.30	1.873	0.118	3.02	0.180	1.230	1.20
11 pupation	10.00	0.42	1.941	0.204	3.60	0.180	2.130	1.35
14	13.22	0.62	2.012	0.220	13d 5.40	0.210	4.28	?
20	12.15	0.60	2.355	0.132	16d 97.0	8.02	28.36	6.48
21 moth	9.00	0.52	2.080	—	534.0	10.22	49.63	47.62

Table II. Nippon 111 September reared.

Time (days)	Male; Body weight 10 heads	(Ten testis)		Water	Female; Body weight 10 heads	(Ten ovaries)		Water
		Fresh matter	Dry matter			Fresh matter	Dry matter	
The 5th instar	gr	mgr	mgr	%	gr	mgr	mgr	%
1	9.10	33.0	3.50	89.4	10.22	9.7	0.5	93.8
2	11.0	35.2	3.8	89.2	13.12	10.6	0.8	92.5
4	15.3	62.7	4.8	92.3	19.40	14.2	1.0	92.9
6	27.0	65.2	6.2	90.5	32.62	20.2	1.4	93.1
8 cocooning	34.8	91.2	8.5	90.7	37.40	27.0	2.0	92.6
13 pupation	13.12	146.2	15.4	89.5	17.43	54.0	6.0	89.2
16	12.27	176.2	20.0	88.6	17.02	111.3	17.0	84.7
20	12.02	177.3	19.4	89.0	17.80	2003.0	470.0	76.5
22	11.42	151.7	18.8	87.6	16.48	3283.0	745.0	77.3
25 moth	10.08	71.20	10.2	85.6	15.97	3255.0	785.0	74.6

There was little influence on the remaining gland, when one of a pair of glands was extirpated at the early period of the 5th stage of the silk worm larva. When the abdominal stigmata of one side of the silk worm larva were sealed by enamels the development of the testis and the ovary of the sealed stigma side became inferior to those of the open stigma side, but in case the sealing of stigma was carried out after pupation the influence was not evident.

Effects of Fertilizers, especially of Potassium, on Sweet Potatoes as Source of Alcohol. I.

(pp. 989~1005)

By Akira SUZUKI, Shinji DOI, Teijiro UYEMURA, Yinchang WANG,
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(Agricultural Chemical Laboratory, Department of Agriculture,
Tokyo Imperial University; Received Oct. 7, 1939.)

On the Enzymic Action of Nucleotid-like Substances. (2)

(pp. 1006~1008)

By Tetsutarō TADOKORO.

(Hokkaido Imperial University; Received Sept. 16, 1939.)

Statistic Studies of Soils. (X).

(pp. 1009~1012)

By Dr. MISU-Hido and RIHOKI.

(Agricultural Experiment Station, Government General of Tyosen;
Received Sept. 25, 1939.)

On the Method of Quantitative Estimation of the Aroma of Scented Tea.

(A Preliminary Report)

(pp. 1013~1017)

By K. UENO.

(Tea Experiment Station, Shizuoka, Received Oct. 7, 1939.)